

ABSTRACT OF THE DISCLOSURE

There are provided a thickness-measuring method and apparatus capable of measuring thicknesses of respective layers of a multilayer thin film used in functional resin films or information electronic materials at a still higher accuracy and instantaneously, which are also applicable to a sample in production line non-destruct. In the thickness-measuring method for the multilayer thin film, a reflected or transmitted light obtained by irradiating a white light onto a sample (7) having the multilayer thin film is spectrally dispersed to obtain a spectrum thereof; and the obtained spectrum is transformed into a frequency signal which is then subjected to wavelet processing to remove components other than coherence signals from the frequency signal, and then the resultant signal is subjected to frequency analysis to detect the thicknesses of layers of the thin film. In addition, the thickness-measuring apparatus includes a light source (1), an irradiating optical fiber (2), a light-receiving optical fiber (3), a monochromator (4), a multi-channel detector (5) and an arithmetic processing means (6) for conducting the above processing.